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coordinates, and thus are driven independent from one another. The transmitter coil 190 is responsible for delivering the RF pulses into the aperture 155 at the Larmor frequency for providing excitation of the protons in the specimen, e.g., a human body. The receiver coil 195 is responsible for acquiring the signal generated from the excited protons during the proton relaxation period, as is understood. Driving these coils and interfacing the MRI unit 150 with a computer 110 is a scan controller 130. The scan controller 130 is the hardware that provides the real-time data delivery to and from the various equipment, e.g., digital to analog converters, as described more fully hereinbelow with reference to FIGURE 2. An iron yoke 170 completes the circuit by coupling the poles of the magnetic material of the plates. It is understood that permanent magnets, as well as superconducting magnets, may be suitably interchanged for the resistive electromagnet.--

Please replace the paragraph beginning on page 13, line 1, with the following paragraph:

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--With reference not to FIGURE 2, a more detailed illustration of the scan controller 130 interfacing between computer 110 and MRI unit 150 is illustrated. Scan controller 130 is in communication with computer 110 over data links 202 and 204 for respectively sending and receiving digital data thereover, although a single bi-directional data link could be substituted therefore. Timing of all interactions, including frequency and phase settings for the respective transmitter 190 and receiver coil 195, with MRI unit 150 is coordinated by synthesizers 230 integrated within scan controller 130. In a preferred embodiment, synthesizers 230 include two synthesizers which interface with two synthesizer DACs 231 and 232. The scan controller 130 interfaces with three gradient DACs 240, 242 and 244, each providing a gradient field in mutually orthogonal planes, as well as two RF shaper DACs 250 and 252. To control and operate an advanced MRI unit as in the preferred embodiment, at least seven DACs are needed to transfer digital input between the scan

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controller 130 and the MRI unit 150. However, the preferred embodiment is capable of numerous modifications and rearrangements which would require more or less than seven DACs. Gradient DACs 240 are supplied with digital gradient information describing the x, y and z gradient fields over respective gradient DAC input lines 241, 243 and 245, as defined by the MRI pulse sequence received by scan controller 130 from computer 110. Gradient DACs 240, 242 and 244 then convert the digital gradient data to corresponding analog gradients which are transmitted to respective gradient coils 180 over gradient DAC output lines 246, 247 and 248. Thus, gradient DAC 240 is responsible for driving one gradient coil, e.g., gradient coil 180 X of the set of gradient coils 180. Likewise, each of gradient DACs 242 and 244 are responsible for driving a corresponding one of the remaining gradient coils 180, e.g., respective gradient coils 180 Y and 180 Z.--

Please replace the paragraph beginning on page 14, line 4, with the following paragraph:

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--RF shaper DACs 250 and 252 are responsible for converting the RF shape data from the digital domain as defined in the MRI pulse sequence received by the scan controller 130 from computer 110 and modulating the representative RF shapes accordingly. The RF shapes are received and modulated by transmitter coil 190, generally at the Larmor frequency, to the subject specimen being analyzed in aperture 155. The frequency and phase of these modulations are controlled by synthesizers 230 over control lines 260 and 261. The echo resulting from the applied gradient waveforms and RF pulses is acquired by the receiver coil 195 during the relaxation periods and accordingly transmitted to the scan controller 130. Proper acquisition of the echo is facilitated by frequency and phase settings applied to the receiver channel by synthesizers 230. These frequency and phase settings are supplied to the scan controller by the MRI pulse sequence data received from computer 110. Thus, the MRI